



# PHENGUARD 935

4 pages

March 2011  
Revision of April 2009

**DESCRIPTION** two component high build amine adduct cured novolac phenolic epoxy coating

**PRINCIPAL CHARACTERISTICS**

- second coat in the Phenguard tankcoating system
- excellent resistance to a wide range of organic acids, alcohols, edible oils, fats (regardless of free fatty acid content) and solvents
- maximum cargo flexibility
- low cargo absorption
- good resistance to hot water
- Recognized corrosion control coating (Lloyd's register), see sheet 1886
- good application properties, resulting in a smooth surface

**COLOURS AND GLOSS** pink - eggshell

**BASIC DATA AT 20°C** (1 g/cm<sup>3</sup> = 8.25 lb/US gal; 1 m<sup>2</sup>/l = 40.7 ft<sup>2</sup>/US gal)  
(data for mixed product)

Mass density 1.7 g/cm<sup>3</sup>  
Volume solids 66 ± 2%  
VOC (supplied) max. 191 g/kg (Directive 1999/13/EC, SED)  
max. 315 g/l (approx. 2.6 lb/gal)

Recommended dry film thickness 100 µm \*  
Theoretical spreading rate 6.6 m<sup>2</sup>/l for 100 µm \*  
Touch dry after 2 hours  
Overcoating interval min. 24 hours \*  
max. 21 days \*  
Curing time see curing table \*

(data for components)  
Shelf life (cool and dry place) at least 12 months  
\* see additional data

**RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES**

- previous coat of Phenguard 930; dry and free from any contamination
- the substrate must be perfectly dry before and during application of Phenguard 935
- substrate temperature must be above 10°C and at least 3°C above dew point during application and curing

**SYSTEM SPECIFICATION** marine tankcoatings system sheet: 3141  
system sheet: 3322

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## INSTRUCTIONS FOR USE

mixing ratio by volume: base to hardener 88 : 12

- the temperature of the mixed base and hardener should preferably be above 15°C, otherwise extra solvent may be required to obtain application viscosity
- too much solvent results in reduced sag resistance and slower cure
- thinner should be added after mixing the components

Induction time

allow induction time before use  
 15°C - 20 min.  
 20°C - 15 min.  
 25°C - 10 min.

Pot life

4 hours at 20°C \*  
 \* see additional data

## AIRLESS SPRAY

Recommended thinner  
 Volume of thinner  
 Nozzle orifice  
 Nozzle pressure

Thinner 91-92  
 2 - 10%, depending on required thickness and application conditions  
 approx. 0.46 - 0.53 mm (= 0.018 - 0.021 in)  
 15 MPa (= approx. 150 bar; 2130 p.s.i.)

## AIR SPRAY

Recommended thinner  
 Volume of thinner  
 Nozzle orifice  
 Nozzle pressure

Thinner 91-92  
 2 - 10%, depending on required thickness and application conditions  
 2 mm  
 0.3 MPa (= approx. 3 bar; 43 p.s.i.)

## BRUSH/ROLLER

Recommended thinner  
 Volume of thinner

Thinner 91-92  
 0 - 5%

## CLEANING SOLVENT

Thinner 90-53

## SAFETY PRECAUTIONS

for paint and recommended thinners see safety sheets 1430, 1431 and relevant material safety data sheets

this is a solvent borne paint and care should be taken to avoid inhalation of spray mist or vapour as well as contact between the wet paint and exposed skin or eyes

## ADDITIONAL DATA

### Film thickness and spreading rate

theoretical spreading rate m <sup>2</sup> /l	6.6	5.3
dft in µm	100	125

max. dft when brushing:

60 µm

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### Overcoating table for Phenguard 935

substrate temperature	10°C	15°C	20°C	30°C	40°C
minimum interval	36 hours	32 hours	24 hours	16 hours	12 hours
maximum interval	28 days	25 days	21 days	14 days	7 days

- surface should be dry and free from any contamination

### Curing table

substrate temperature	min. curing time of Phenguard tankcoating system before transport of cargoes without note 4, 7, 8 or 11 and ballast water and tanktest with sea water
10°C	14 days
15°C	14 days
20°C	10 days
30°C	7 days
40°C	5 days

- minimum curing time of Phenguard tankcoating system before transport of cargoes with note 4, 7, 8 or 11: 3 months
- for detailed information on resistance and resistance notes, please refer to the latest issue of the Cargo Resistance List
- for transport of methanol and vinyl acetate monomer, a hot cargo cure is required which cannot be substituted by a service period of 3 months with non-aggressive cargoes
- adequate ventilation must be maintained during application and curing (please refer to sheets 1433 and 1434)
- the performance of the applied system strongly depends on the curing degree of the first coat at time of recoating. Therefore overcoating time between 1st and 2nd coat is extended in comparison between 2nd and 3rd coat (see overcoating details)

### Pot life (at application viscosity)

10°C	6 hours
20°C	4 hours
30°C	1.5 hour

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## Worldwide availability

Whilst it is always the aim of PPG Protective & Marine Coatings to supply the same product on a worldwide basis, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.

## REFERENCES

Explanation to product data sheets	see information sheet 1411
Safety indications	see information sheet 1430
Safety in confined spaces and health safety	
Explosion hazard - toxic hazard	see information sheet 1431
Safe working in confined spaces	see information sheet 1433
Directives for ventilation practice	see information sheet 1434
Specification for mineral abrasives	see information sheet 1491

## LIMITATION OF LIABILITY

The information in this data sheet is based upon laboratory tests we believe to be accurate and is intended for guidance only. All recommendations or suggestions relating to the use of the Sigma Coatings products made by PPG Protective & Marine Coatings, whether in technical documentation, or in response to a specific enquiry, or otherwise, are based on data which to the best of our knowledge are reliable. The products and information are designed for users having the requisite knowledge and industrial skills and it is the end-user's responsibility to determine the suitability of the product for its intended use.

PPG Protective & Marine Coatings has no control over either the quality or condition of the substrate, or the many factors affecting the use and application of the product. PPG Protective & Marine Coatings does therefore not accept any liability arising from loss, injury or damage resulting from such use or the contents of this data sheet (unless there are written agreements stating otherwise).

The data contained herein are liable to modification as a result of practical experience and continuous product development.

This data sheet replaces and annuls all previous issues and it is therefore the user's responsibility to ensure that this sheet is current prior to using the product.

The English text of this document shall prevail over any translation thereof.

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